What is claimed is:

1. A monoclonal antibody, MAb 4A2-2, produced from hybridoma cell 1 Are ATCC PTA-971.

2. A monoclonal antibody, MAb 6B2-2, produced from hybridoma cell/line ATCC PTA-969.

3. A monodlonal antibody, MAb 6C2-4, produced from 10 hybridoma cell line ATCC PTA-970.

4. A continuous hybridoma cell line having deposit accession number ATCC PTA-971, and clones thereof, which cell line produces monoclonal antibody to BoNT/A.

\$. A continuous hybridoma cell line having deposit accession number ATCC PTA-969, and clones thereof, which cell /ine produces monoclonal antibody to BoNT/A.

6. A continuous hybridoma cell line having deposit accession number ATCC PTA-970, and clones thereof, which cell line produces monoclonal antibody to BoNT/A.

7. A monoclonal antibody which binds an epitope comprising amino acids 1\150-1289 of BoNT/A.

8. A monoclonal anthibody which binds an epitope 30 comprising amino acids 1157-1181 of BoNT/A.

9. A monoclonal antibody which binds an epitope comprising amino acids 1230-1253 of BoNT/A.

15

20

25

- 10. A monoclona antibody which binds an epitope comprising 1157-1253 of BoNT/A.
- 5 11. A DNA sequence encoding an antigen binding domain of the monoclonal antibody of claim 1, and any portion thereof still capable of binding to said antigen.
- 12. A DNA sequence encoding an antigen binding domain
 10 of the monoclonal antibody of claim 2, and any portion
 thereof still capable of binding to said antigen.
- 13. A DNA sequence encoding an antigen binding domain of the monoclonal antibody of claim 3, and any portion thereof still capable of binding to said antigen.
 - 14. A method for detecting BoNT/A said method comprising:
- (i) incubating a sample with an effective
 20 amount of at least one monoclonal antibody against
 BoNT/A, under conditions which allow the formation of
 an antibody-BoNT/A complex; and
 - (ii) detecting the antibody-BoNT/A complex wherein the presence or absence of the comples
- 25 indicates the presence of absence of BoNT/A in the sample.
 - 15. A method for detecting BoNT/A according to claim
 14 wherein said monoclonal antibody is chosen from
 the group consisting of 4A2-2, 6B2-2, and 6C2-4.
 - 16. A method for detecting BoNT/A according to claim 15 wherein, said sample is water, biologicals, pharmaceuticals, or food products.

Sub C1

30

- 17. A method of treating BoNT/A intoxication comprising administering to a patient in need of said treatment an amount of a monoclonal antibody selected from the group consisting of: 4A2-2, 6B2-2, and 6C2-2 sufficient to effect said treatment.
- 18. A pharmaceutical composition comprising the monoclonal antibody of claim 1 in a concentration sufficient to inhibit botulism poisoning, together with a pharmaceutically acceptable carrier.

19. A pharmaceutical composition comprising the monoclonal antibody of claim 2 in a concentration sufficient to inhibit botulism poisoning, together with a pharmaceutically acceptable carrier.

20. A pharmaceutical composition comprising the monoclonal antibody of claim 3 in a concentration sufficient to inhibit botulism poisoning, together with a pharmaceutically acceptable carrier.

21. A kit for detecting BoNT/A in a biological sample, said kit comprising:

(1) a container holding at least one monoclonal antibody selected from the group consisting of MAb 4A2-2, MAb 6B2-2, and MAb 6C2-2; and

(2) instructions for using the antibody for the purpose of binding to BoNT/A to form an immunological complex and detecting the formation of the immunological complex such that presence or absence of immunological complex correlates with presence or absence of BoNT/A in said sample.

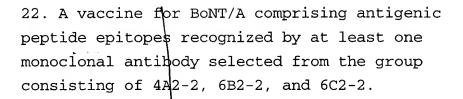
Suh (2

20

15

25

30



5

- 23. A vaccine according to claim 22 wherein said peptides are chosen from the group consisting of SEQ ID NO:2 and SEQ ID NO:3.
- 10 24. A vaccine according to claim 22 wherein said peptides comprise the region of BoNT/A Hc encompassing amino acid residues 1150-1289 (SEQ ID NO:1).
- 25. A vacsine according to claim 24 wherein said peptides comprise the region of BoNT/A Hc encompassing amino acid residues 1157-1253 of SEQ ID NO:1.
- 20 26. A pharmaceutical composition comprising a peptide encoded by any of SEQ ID NO:2 and SEQ ID NO:3, in a pharmaceutically acceptable amount, in a pharmaceutically acceptable carrier and/or adjuvant.

27. A method for capturing BoNT/A from a sample, said method comprising contacting said sample with one or more monoclonal antibody selected from the group consisting of 4A2-4, 6B2-2, and 6C2-2, and isolating the complex formed between the BoNT/A in the sample and the monoclonal antibody.

3.0

28. The method according to claim 27 wherein said sample is selected from the group consisting of: biological fluid and animal tissue.